

## REMARKS

Claims 1-19 are pending at the time of the Office Action. Claims 20-26 were withdrawn from consideration. In the Office Action mailed on December 1, 2006, the Examiner took the following action: (1) rejected claims 1-3 and 12-14 under 35 U.S.C. §102(b) as being anticipated by Waldrop (U.S. Application 2002/0022422) and (2) rejected claims 1-19 and 8-11 under 35 U.S.C. §103(a) as being unpatentable over Mead (U.S. 6,620,369) in view of Waldrop. Claims 12-17 and 19 are amended. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks.

### *I. Rejections under 35 U.S.C. §102(b)*

Claims 1-3 and 12-14 are rejected under 35 U.S.C. §102(b) as being anticipated by Waldrop. Applicants respectfully traverse the rejections, and submit the claims are allowable over the cited reference to Waldrop.

#### Waldrop (U.S. Application 2002/0022422)

Waldrop teaches a liquid molding process and system for producing quality composite structures. (Paragraph 32, Lines 1-3). Waldrop teaches a double bag vacuum infusion process to improve the stiffness of the bagging material to avoid relaxation behind a resin wave front, thereby permitting the infusion of void-free composites having the high fiber volumes desired for aerospace applications. (Paragraph 33, Lines 3-7).

#### Claims 1-3

Claims 2-3 depend from claim 1. Claim 1, as amended, recites:

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1. A method of processing a composite component, comprising:
  - providing a lay-up mandrel having a non-planar portion;
  - forming a prepreg material on the non-planar portion of a lay-up mandrel;
  - providing an elastomeric caul over the prepreg material in an initial position such that a first portion of the elastomeric caul is proximate the prepreg material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material;
  - reducing a pressure within a space disposed between the elastomeric caul and the lay-up mandrel proximate the non-planar portion; and simultaneously with the reducing of the pressure with the space, stretching the elastomeric caul into a second position such that the second portion of the elastomeric caul is drawn proximate to at least one of the prepreg material and the lay-up mandrel.

Applicants respectfully assert that claim 1 is patentable over Waldrop. Specifically, Waldrop does not teach or suggest, “forming a *prepreg* material on the non-planar portion of a lay-up mandrel,” as recited in claim 1. (emphasis added).

First, Waldrop teaches a double bag vacuum infusion process that involves placing a fiber preform over a lay-up tool. (Figs. 2 and 10). However, this preform is distinguishable from the “*prepreg material*” of claim 1. This is because Waldrop teaches a *liquid molding process* wherein after the preform is placed on the lay-up tool, the preform is then *infused with resin* using a vacuum-assisted resin transferring process to form a composite component. (Paragraph 32, Lines 1-3; Paragraph 35, Lines 1-9). In other words, the preform of Waldrop is not equivalent a “*prepreg material*” because the preform is not pre-impregnated with resin at the time it is placed on the lay-up tool.

Second, additional teachings of Waldrop also distinguish Waldrop’s “preform” from the “*prepreg material*,” as recited in claim 1. A relevant portion of Waldrop’s specification also states:

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“Generally speaking, more care must be exercised when handling dry or binderized preforms relative to traditional prepreg materials. On the other hand, dry or binderized performs typically require fewer vacuum debulking steps than prepregs.” (Paragraph 115, Lines 1-5).

Thus, Waldrop’s teachings make a clear distinction between its “preform” and prepreg materials, such as those recited in claim 1. As a result, applicants respectfully submit that Waldrop cannot teach or suggest “forming a *prepreg* material on the non-planar portion of a lay-up mandrel,” as recited in claim 1. (emphasis added).

Third, since Waldrop does not teach or suggest “forming a *prepreg*,” it also cannot teach or suggest, “providing an elastomeric caul over the *prepreg* material in an initial position such that a first portion of the elastomeric caul is proximate the *prepreg material* on the lay-up mandrel, and *a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material*,” as recited in claim 1. (emphasis added).

Accordingly, claim 1 is allowable over Waldrop. Furthermore, because claims 2-3 depend from claim 1, they are also allowable over Waldrop for at least the same reason claim 1 is allowable, as well as for additional limitations recited in those claims.

#### Claims 12-14

Claims 13-14 depend from claim 12. Claim 12, as amended, recites:

12. A method of manufacturing an aircraft component, comprising:  
    forming *prepreg* material on a non-planar portion of a mandrel;  
    providing an elastomeric caul over the *prepreg* material in an initial position such that a first portion of the elastomeric caul is proximate the *prepreg* material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the *prepreg* material;

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reducing a pressure within a space disposed between the elastomeric caulk and the lay-up mandrel proximate the non-planar portion; simultaneously with the reducing of the pressure with the space, stretching the elastomeric caulk into a second position such that the second portion of the elastomeric caulk is drawn proximate to at least one of the *prepreg* material and the lay-up mandrel; and curing the *prepreg* material. (emphasis added).

Applicants respectfully assert that claim 12, as amended, is patentable over Waldrop. Specifically, applicants respectfully incorporate the arguments presented above in response to the rejection of claim 1 under 35 U.S.C. §102(b) by reference, and reassert that Waldrop does not teach or suggest the method recited in claim 12. (emphasis added).

Furthermore, because claims 13-14 depend from claim 12, they are also allowable over Waldrop for at least the same reason claim 12 is allowable, as well as for additional limitations recited in those claims.

## *II. Rejections under 35 U.S.C. §103(a)*

### Mead (U.S. 6,620,369)

Mead teaches a method of forming a resin composite part utilizing a mold surface for mitigating post-cure machining of the resin composite part. (2:29-32). The method provides for forming a resin preform having a peripheral geometry similarly sized and configured as a configuration of the mold surface. (2:32-34). The resin preform is cured to form the resin composite part with the resin composite part being confirmed to the configuration of the mold surface for mitigating post-cure machining of the resin composite part. (2:34-38).

### Claim 1-11

Claim 1-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Waldrop in view of Mead. Claim 2-11 depend from claim 1. Claim 1, as amended, recites:

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1. A method of processing a composite component, comprising:
  - providing a lay-up mandrel having a non-planar portion;
  - forming a prepreg material on the non-planar portion of a lay-up mandrel;
  - providing an elastomeric caul over the prepreg material in an initial position such that a first portion of the elastomeric caul is proximate the prepreg material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material;
  - reducing a pressure within a space disposed between the elastomeric caul and the lay-up mandrel proximate the non-planar portion; and simultaneously with the reducing of the pressure with the space, stretching the elastomeric caul into a second position such that the second portion of the elastomeric caul is drawn proximate to at least one of the prepreg material and the lay-up mandrel.

Applicants respectfully assert that the cited references to Waldrop and Mead, whether individually or in combination, do not disclose, teach or fairly suggest every aspect of claim 1. First, as noted by the Examiner, Mead does not teach, as recited in claim 1, “providing an elastomeric caul over the *prepreg* material in an initial position such that a first portion of the elastomeric caul is proximate the *prepreg material* on the lay-up mandrel, and *a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material.*” (emphasis added).

Second, applicants respectfully submit that the deficiencies of Mead are not remedied by Waldrop. To this end, applicants respectfully incorporate arguments presented above in response to the rejection of claim 1 under 35 U.S.C. §102(b) by analogy, and assert that Waldrop does not teach a process that involves forming composite components from prepgs.

Accordingly, the cited references to Waldrop and Mead, whether individually or in combination, do not teach, disclose or fairly suggest the system recited in claim 1. Furthermore,

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since claim 2-11 depend from claim 1, they are least allowable for the same reason that makes claim 1 allowable over the cited references.

Claim 12-19

Claim 12-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Waldrop in view of Mead. Claims 13-19 depend from claim 12. Claim 12, as amended, recites:

12. A method of manufacturing an aircraft component, comprising:  
forming prepreg material on a non-planar portion of a mandrel;  
providing an elastomeric caul over the prepreg material in an initial position such that a first portion of the elastomeric caul is proximate the prepreg material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material;  
reducing a pressure within a space disposed between the elastomeric caul and the lay-up mandrel proximate the non-planar portion; simultaneously with the reducing of the pressure with the space, stretching the elastomeric caul into a second position such that the second portion of the elastomeric caul is drawn proximate to at least one of the prepreg material and the lay-up mandrel; and  
curing the prepreg material.

Applicants respectfully assert that the cited references to Waldrop and Mead, whether individually or in combination, do not disclose, teach or fairly suggest every aspect of claim 12. First, as noted by the Examiner, Mead does not teach, as recited in claim 12, “providing an elastomeric caul over the *prepreg* material in an initial position such that a first portion of the elastomeric caul is proximate the *prepreg material* on the lay-up mandrel, and *a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material.*” (emphasis added).

Second, applicants respectfully submit that the deficiencies of Mead are not remedied by Waldrop. To this end, applicants respectfully incorporate the arguments presented above in

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response to the rejection of claim 1 under 35 U.S.C. §102(b) by analogy, and assert that Waldrop does not teach a process that involves forming composite components from preprints.

Accordingly, the cited references to Waldrop and Mead, whether individually or in combination, do not teach, disclose or fairly suggest the system recited in claim 12. Furthermore, since claims 13-19 depend from claim 12, they are least allowable for the same reason that makes claim 12 allowable over the cited references.

## CONCLUSION

Applicants respectfully submit that pending claims 1-19 are now in condition for allowance. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully Submitted,

Dated: 1-29-07

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